[illegible] V. S., [illegible] sel'skokhoz. nauk

[illegible] forage dense and planting rates. Zemledelie 27 no.9:65-66 S '65.
(MIRA 18:10)

1. Khersonskiy sel'skokhozyaystvennyy institut.

LOKSHIN, A.M., inzh.; IVANOV, V.K., inzh.

A new modulating device for a standard TTR-5/2,5 kw. television station. Vest. sviazi 24 no.9:3-5 S '64. (MIRA 17:11)

IVANOV, V.K.

O skhodimosti protsessov iteratsii pri reshenii sistem lineynykh algebraicheskikh uravneniy. Ian, ser, matem. (1939), 477-476

SO: MATHEMATICS, IN THE USSR, 1917-1947
edited by Kurosh, A.G.
Markushevich, A.L.
Radhevskiy, P.K.
Moscow-Lenigrad, 1948

USSR/Mathematics - Operational Theory Nov/Dec 48
Mathematics - Transformations

"Fourier's Generalized Transformation in Operational Calculus," V. K. Ivanov, Sverdlovsk, Ural State U imeni A. M. Gor'kiy, 16 pp

"Matemat Sbor" Vol XXIII(LXV), No 3

Author proposes construction of a theory which will permit formal operations with Fourier integrals to be effected during solution of problems in mathematical physics. He does this by unifying the basic concepts of Bochner's theory of generalized trigonometric integrals with Gunter's ideas on problems of mathematical physics.

23/49T70

IVANOV, V. K.

PA 41T47

USSR/Geophysics Mar/Apr 1948
Electromagnetic Waves
Earth - Electrical Properties

"The Existence of Surface Electromagnetic Waves in Two Different Media That Are Adjacent along a Plane," V. K. Ivanov, 4 pp

"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XII, No 2

Describes conditions necessary for the function used to determine Hertz's vector (calculated on the basis of the varying electromagnetic field of a vertical electrical dipole in two media).

41T47

USSR/Geophysics - Gravitation Sep/Oct 50

166T32 "Determination of the Harmonic Moments of Perturbing Masses From the Derivative of the Gravitational Potential Given on a Plane," V. K. Ivanov, Ural State U imeni A. M. Gor'kiy

"Iz Ak Nauk SSSR, Ser Geograf i Geofiz" Vol XIV, No 5, pp 403-415

Derives formulas which permit finding harmonic moments of a mass from values of one of the derivatives of its plane potential. Results are expressed in single integrals for a finite interval, so calculations can be made by simple quadratures.

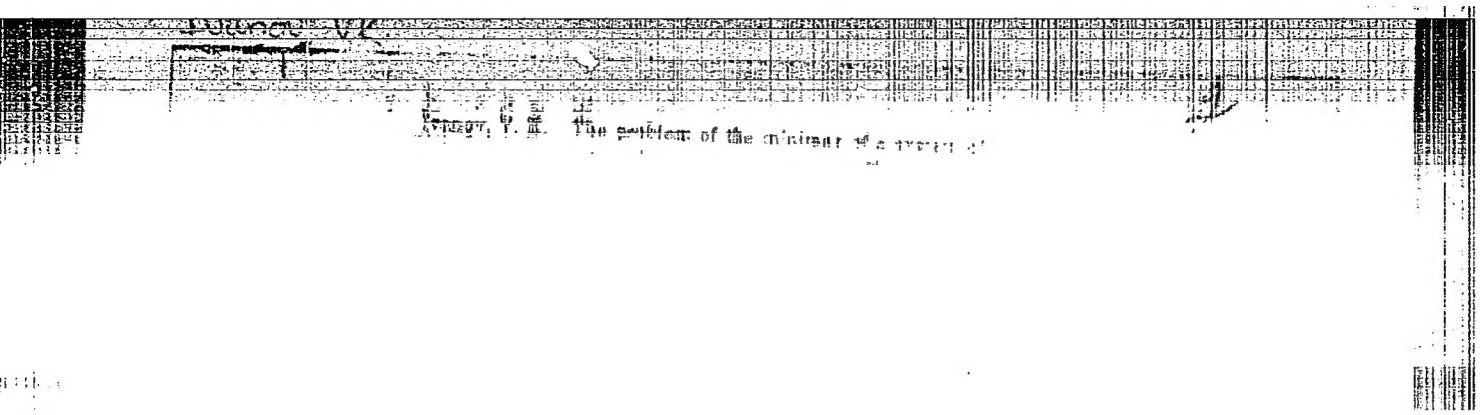
166T32

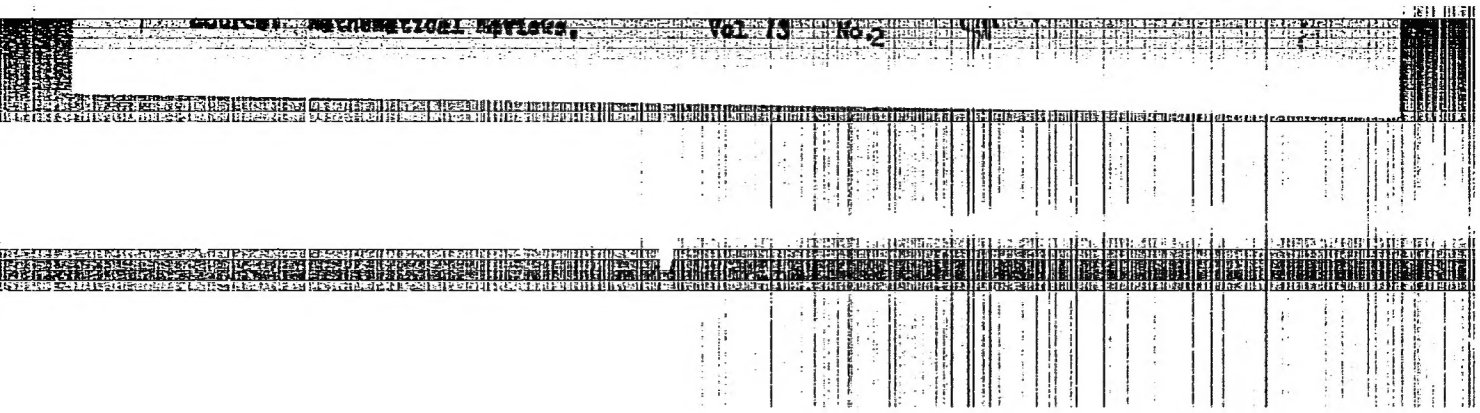
USSR/Geophysics - Gravitation Sep/Oct 50

Gives method for evaluating order of error obtained when integration for entire plane is replaced by integration for its finite part. Submitted 19 Dec 49 by Acad O. Yu. Shmidt.

166T32

IVANOV, V. K.





IVANOV, V., K.

USSR/Mathematics - Approximations, Uniform May/Jun 52

"Uniform Approximations of Continuous Functions," V. K. Ivanov, Sverdlovsk

"Matemat Sbor" Vol XXX (72), No 3, pp 543-558

Discusses P. L. Chebyshev's problem concerning uniform approximations of a complex continuous function f(x) defined on a compact space X by complex quasi-polynomials of the form $P(x) = a_1L_1(x) + \ldots + a_nL_n(x)$, where $L_i(x)$ are complex continuous functions defined in X. Submitted 5 Jun 51.

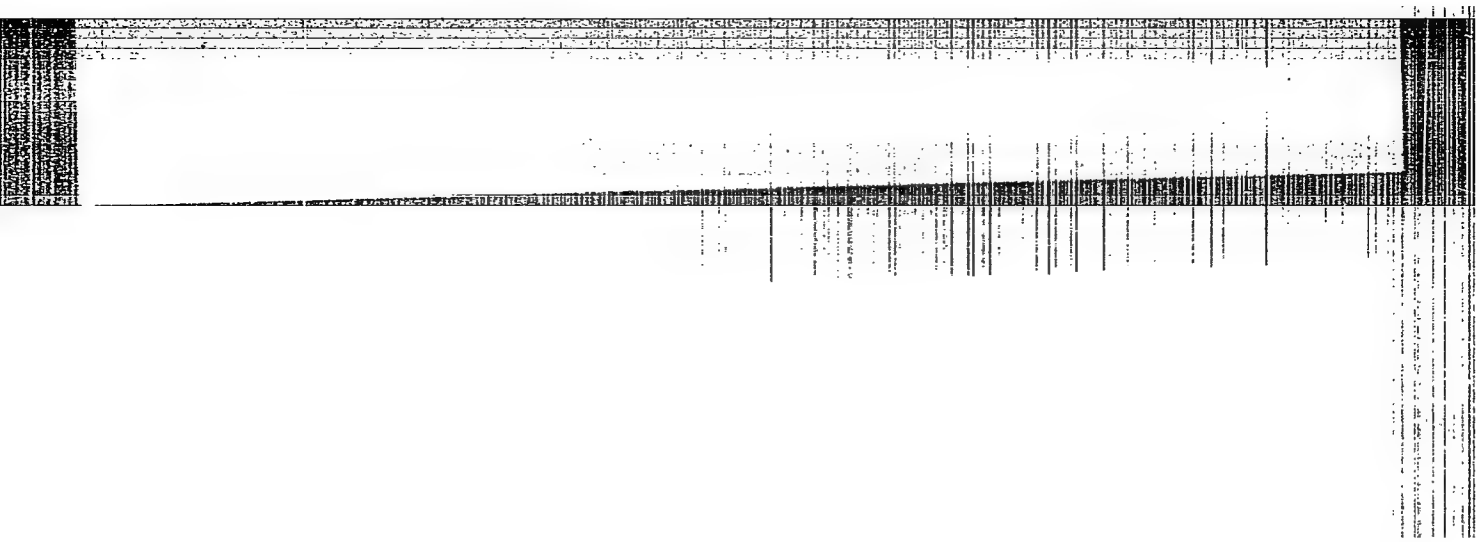
217T74

IVANOV, Valentin Konstantinovich.

Ural State U imeni Gor'kiy, Academic degree of Doctor of Physico-Mathematical Sciences, based on his defense, 29 December 1955, in the Council of the Mathematics Inst imeni Steklov, Acad Sci USSR, of his dissertation entitled: "Investigations of the reciprocal problem of potential."

Academic degree and/or title: Doctor of Phys.-Math. Sciences

SO: Decisions of VAK, List no. 5, 3 March 56, Byulleten' MVO SSSR, No. 2, Jan 57, Moscow, pp 17-20, Uncl. JPRS/NY-466



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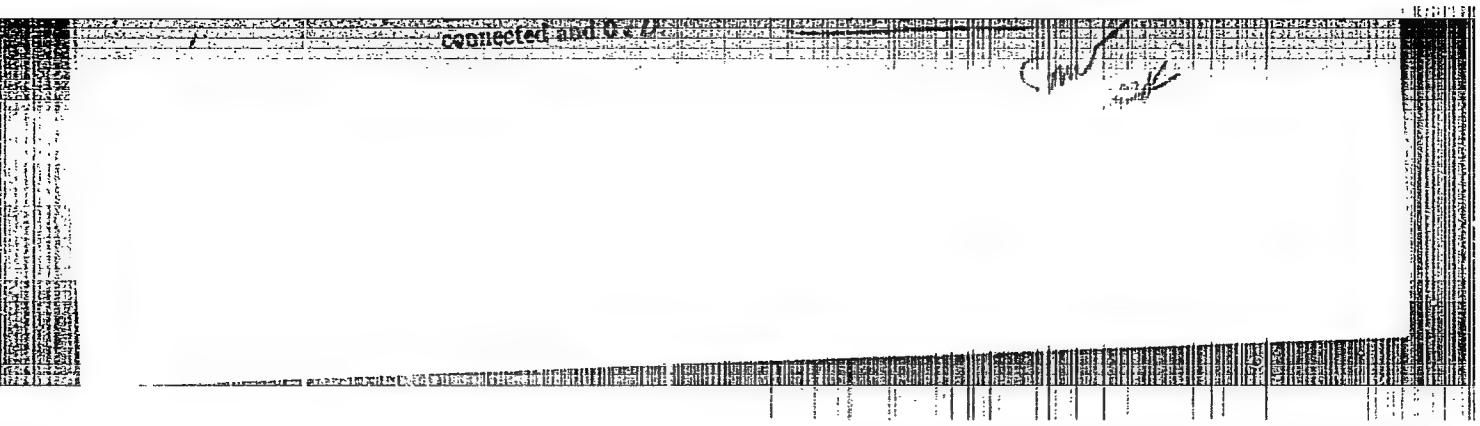
whose inverse image lies in the circle $|z| \leq r < 1$, then $f(z)$ is
regular for $|z| < r^{-1}$ and if



APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619130003-8"

IVANOV, V.K.

SUBJECT USSR/MATHEMATICS/Theory of functions CARD 1/2 PG - 553
AUTHOR IVANOV V.K.
TITLE On the distribution of singularities of a potential.
PERIODICAL Uspechi mat.Nauk 11, 5, 67-70 (1956)
reviewed 1/1957

The author solves the following problem: In a halfplane $y>0$ finite masses are distributed which fill up a finite region D of the XY-plane. On the straight line $y = 0$ the derivative V_y of the potential is known. Determine the distance H of the OX-axis from the set of singularities of the outer potential V at its analytic continuation into the inner of the masses. An analogous problem is considered in the space (the masses are distributed in the halpspace $z>0$ and on $z = 0$, V_z is given). In the plane case the author obtains

$$H = -\overline{\lim_{r\to\infty}} \frac{\ln|v_1(r)|}{r}$$

where

$$v_1(r) = \int_{-\infty}^{+\infty} e^{irx} V_y(x,0)\,dx.$$

In the spatial case:

Uspechi mat.Nauk 11, 5, 67-70 (1956) CARD 2/2 PG - 553

$$H = \inf_{\varphi}\left[-\overline{\lim_{r\to\infty}}\ \frac{\ln v_1(r\cos\varphi,\ r\sin\varphi)}{r}\right]$$

where

$$v_1(\xi,\eta) = \frac{1}{2}\int_{-\infty}^{+\infty}\int_{-\infty}^{+\infty} e^{i(x\xi+y\eta)} V_z(x,y,0)\,dx\,dy.$$

For the considerations of the spatial case the author uses ideas of Bicadze (Izvestija Akad.Nauk 17, 525-538 (1953)).

INSTITUTION: Moscow.

IVANOV, V K.

SUBJECT USSR/MATHEMATICS/Integral equations CARD 1/2 PG - 569
AUTHOR IVANOV V.K.
TITLE The inverse potential problem for a body being little different from a given body.
PERIODICAL Izvestija Akad. Nauk 20, 793-818 (1956)
reviewed 2/1957

Let the body T be bounded by the surface S and be filled with a medium of density 1. Let S belong to the class BL according to Lichtenstein (Encykl.d. Math.Wiss. II, 3, 177-377), V be the outer potential of T. Let a harmonic function V_1 be defined outside of S, being regular in infinity, satisfying the condition $\lim_{r\to\infty} V_1 \cdot r > 0$ and being continuable over S into the inner of T. The limit values of the derivatives $\frac{\partial V}{\partial \nu}$, $\frac{\partial^2 V}{\partial \nu^2}$, $\frac{\partial V_1}{\partial \nu}$, $\frac{\partial^2 V_1}{\partial \nu^2}$ with respect to the outer normal are functions of the space R_2 on S (Lichtenstein: Lectures on some classes of non-linear integral equations, p. 123). Under the assumption that the norms

$$\| V_1 - V \| , \quad \left\| \frac{\partial V_1}{\partial \nu} - \frac{\partial V}{\partial \nu} \right\| , \quad \left\| \frac{\partial^2 V_1}{\partial \nu^2} - \frac{\partial^2 V}{\partial \nu^2} \right\|$$

are sufficiently small, the author seeks the body T_1 which is bounded by S_1 and

and posesses the outer potential V_1.

The author proves not only the existence and uniqueness of the solution but moreover he shows that the solution can be obtained constructively by successive approximation. The starting point is the set up of an integro-differential equation in curvilinear coordinates for the sought surface S_1.

Then it is proved that every sufficiently small solution of the integro-differential equation is a solution of the problem in question. The convergence of the successive approximation is proved by aid of the differentiable derivatives of Lichtenstein. The present investigations base on the papers of Lichtenstein.

IVANOV, V.K.

SUBJECT USSR/MATHEMATICS/Functional analysis CARD 1/2 PG - 617
AUTHOR IVANOV V.K.
TITLE The distribution of singularities of a potential and a spatial analogue of the theorem of Polya.
PERIODICAL Mat.Sbornik, n. Ser. 40, 319-338 (1956)
reviewed 2/1957

Let a mass be distributed in the finite region D which lies in the Hilbert space $z>0$ (or in the half plane $y>0$). The outer potential V of this mass can be continued with respect to D as a harmonic function. The distance H from the plane $z = 0$ (or from the straight line $y = 0$) to the set of singularities of the obtained harmonic funotion shall be determined. Let be given the derivative V_z (or V_y) of the potential in the plane $z = 0$ (or on the straight line $y = 0$). In the two-dimensional case the author finds:

$$(1) \quad H = -\overline{\lim_{r\to\infty}} \frac{\log|v_1(r)|}{r}, \qquad v_1(r) = \int_{-\infty}^{+\infty} e^{irx} V_y(x,0)\,dx$$

and in the three-dimensional case:

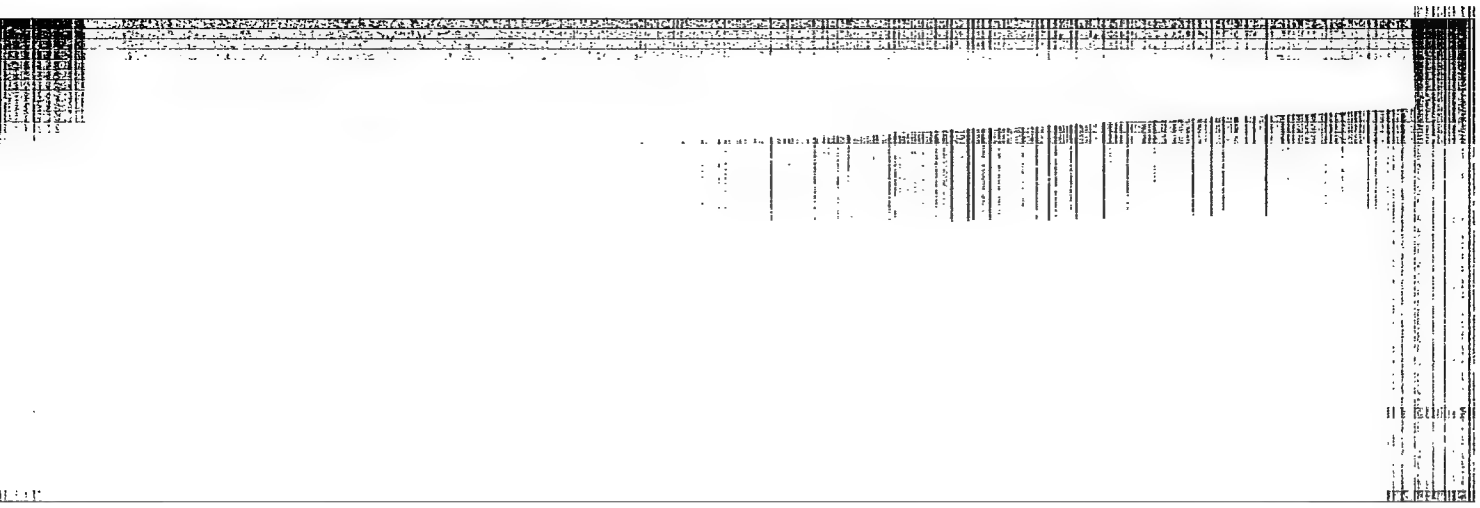
$$(2) \quad H = -\sup_{\psi} \overline{\lim_{r\to\infty}} \frac{\log|v_1(r\cos\psi, r\sin\psi)|}{r}, \qquad v_1(\xi,\eta) = \frac{1}{2\pi}\int_{-\infty}^{+\infty}\int_{-\infty}^{+\infty} e^{i(x\xi+y\eta)} V_z(x,y,0)\,dx\,dy$$

(1) is obtained by aid of Laplace's curve integrals and a theorem on entire functions of Polya (Math.Z. 29, 549-600). In the spatial case the author uses the potential-harmonic vector functions instead of analytic functions and thereby all is reduced to the two-dimensional scheme. It is shown that (2) is connected with the following generalization of a theorem of Polya: Let V be the outer potential of a finite mass which fills up a bounded region. Let $K_1(\theta, \varphi)$ be the support function of the convex closure of the set of singularities of V at a continuation of V into the interior of the considered region. Let $h_1(\psi, \theta, \varphi)$ be the indicatrix of the increase of the characteristic distribution function of the masses. Then the equation

$$K_1(\theta, \varphi) = \sup_{\psi} h_1(\psi, \theta, \varphi + \frac{\pi}{2})$$

is valid.

INSTITUTION: Sverdlovsk.



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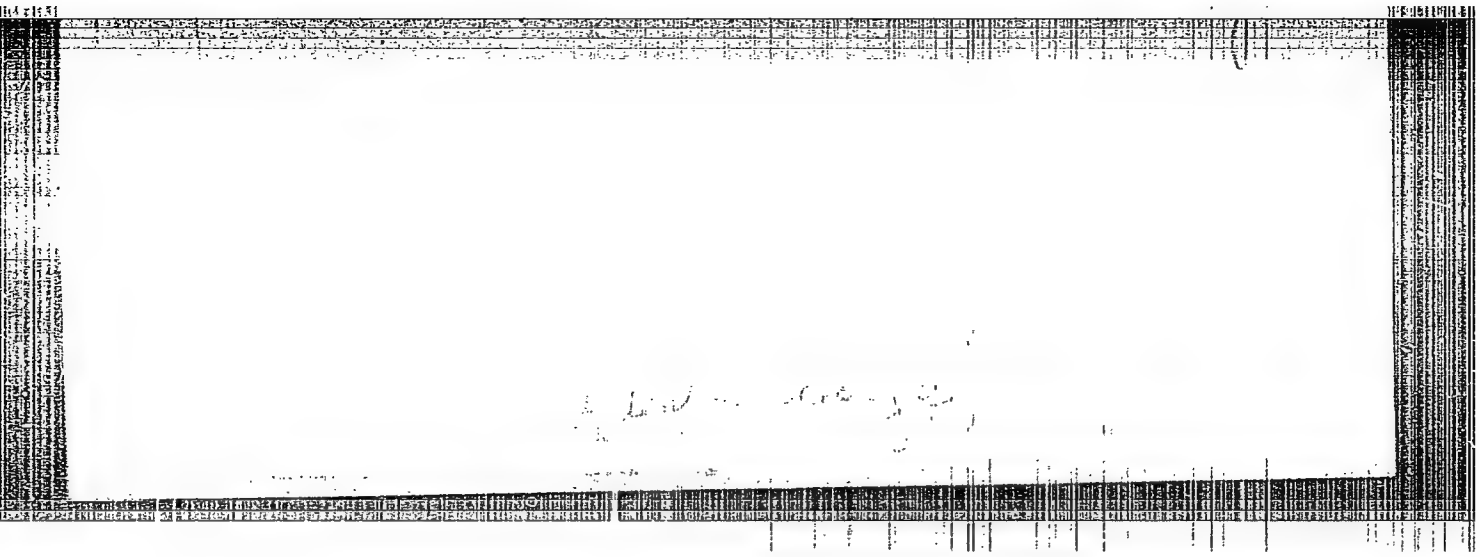

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39-3-5/8

AUTHOR: IVANOV, V.K. (Sverdlovsk)

TITLE: Connection Between the Increase of an Entire Function of many Variables and the Distribution of the Singularities of Its Associated Function (Svyaz' mezhdu rostom tseloy funktsii mnogikh peremennykh i raspredeleniyem osobennostey assotsiirovannoy s ney funktsii)

PERIODICAL: Matematicheskiy Sbornik, 1957, Vol.43, Nr 3, pp.367-378 (USSR)

ABSTRACT: According to Polya's theorem it is

(1) $$h(\varphi) = K(-\varphi) ,$$

where $h(\varphi)$ is the indecatrix of increase of the function

$$F(z) = \sum_{n=0}^{\infty} \frac{a_n}{n!} z^n$$ and $K(\varphi)$ is the supporting function of the convex envelope of the singularities of $f(z) = \sum_{n=0}^{\infty} \frac{a_n}{z^{n+1}}$.

The author transfers this statement to functions of several variables as follows: If in the z-plane the straight line $\Gamma(\varphi)$ which forms the angle φ with the real axis is drawn and if on it the semi-infinite intervals $B(\varphi)$ and $S(\varphi)$ are defined by the conditions $OP_1 > K(\cdot)$, $P_1 : B(\varphi)$ and $OP_2 \cdot h(\cdot)$,

Card 1/3

Connection Between the Increase of an Entire Function of Many Variables and the Distribution of the Singularities of Its Associated Function

$P_2 \in S(\varphi)$, then (1) is equivalent to the relation $\bar{B}(-\varphi) = \bar{S}(\varphi)$. (1) expresses that the limits of the domains $B(-\varphi)$ and $S(\varphi)$ are identical.

Let now be

$$F(z_1,\ldots,z_n) = \sum_{m_1,m_2,\ldots,m_n} \frac{a_{m_1\ldots m_n}}{m_1!\ldots m_n!} z_1^{m_1}\ldots z_n^{m_n}$$

and let the associated function be

$$f(z_1,\ldots,z_n) = \sum_{m_1,\ldots,m_n} \frac{a_{m_1\ldots m_n}}{z_1^{m_1+1}\ldots z_n^{m_n+1}} .$$

Let through the origin of the 2n-dimensional space of the complex variables $z_1,\ldots,z_n$ an oriented n-dimensional plane $\Gamma(\vartheta_1,\ldots\vartheta_n)$ be laid which is determined by the arguments $\vartheta_1,\ldots\vartheta_n$ of the variables $z_1,\ldots,z_n$. On this plane the author constructs the domains $B(\varphi_1,\ldots,\varphi_n)$ and $S(\varphi_1,\ldots,\varphi_n)$ whereby B is defined by the distribution of the singularities of f and S by the increase of F. Now it is proved that

Card 2/3

Connection Between the Increase of an Entire Function of - 39-3-5/8
Many Variables and the Distribution of the Singularities of Its Associated Function

$$\bar{B}(-\varphi_1, \ldots, -\varphi_n) = \bar{S}(\varphi_1, \ldots, \varphi_n) \cdot$$

3 Soviet and 4 foreign references are quoted.

SUBMITTED: 11 June 1956

AVAILABLE: Library of Congress

1. Functions-Theory

Card 3/3

SOV/140-58-3-13/34

AUTHOR: Ivanov, V.K.

TITLE: Uniqueness Theorem of the Inversion Problem of the Logarithmic Potential for Star-Shaped Sets (Teorema yedinstvennosti obratnoy zadachi logarifmicheskogo potentsiala dlya zvezdnykh mnozhestv)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy : Matematika, 1958, Nr 3, pp 99-106 (USSR)

ABSTRACT: If the domain D is radial relative to the origin, then every ray $\arg z = \theta$ contains a limit point

$$z_o = r_o e^{i\theta} \in D$$

, so that all $z = re^{i\theta}$ with $r < r_o$ lie in D. The function $r_o = f(\theta)$ is called the defining function of D.

Theorem: Let D_1 and D_2 be two bounded, measurable sets which are radial relative to the origin. If D_1 and D_2 have the same external potential for the density $\gamma = 1$, then the defining functions $f_1(\theta)$ and $f_2(\theta)$ are identical for almost all values of θ.

The proof is carried out according to the scheme of Novikov

Card 1/2

Uniqueness Theorem of the Inversion Problem of the Logarithmic Potential for Star-Shaped Sets

SOV/140-58-3-13/34

[Ref 1].

There are 7 Soviet references.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni A.M.Gor'kogo (Ural State University imeni A.M. Gor'kiy)

SUBMITTED: December 16, 1957

Card 2/2

SOV/140-58-4-11/30

AUTHOR: Ivanov, V.K.

TITLE: On the Stability of the Reversion Problem of the Logarithmic Potential (Ob ustoychivosti obratnoy zadachi logarifmicheskogo potentsiala)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1958, Nr 4, pp 96-99 (USSR)

ABSTRACT: The sufficient conditions for the stability of the reversion problem of the logarithmic potential as well as the general problem are due to Tikhonov [Ref 3] . A completion to [Ref 3] is the paper of the author [Ref 4]. In the present paper the author gives examples of stability which can be reduced from the results of Tikhonov [Ref 3] and Ivanov [Ref 4].
There are 5 Soviet references.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni A.M.Gor'kogo (Ural State University imeni A.M.Gor'kiy)

SUBMITTED: December 16, 1957

Card 1/1

16(1)
AUTHOR: Ivanov, V.K. (Sverdlovsk)

SOV/39-47-1-1/8

TITLE: The Characteristic of Increase of an Entire Function of Two Variables and its Application for the Summation of Double Power Series (Kharakteristika rosta tseloy funktsii dvukh peremennykh i yeye prilozheniye k summirovaniyu dvoynykh stepennykh ryadov)

PERIODICAL: Matematicheskiy sbornik, 1959, Vol 47, Nr 1, pp 3-16 (USSR)

ABSTRACT: Let

$$F(z_1,z_2) = \sum_{m,n} \frac{a_{mn}}{m!n!} z_1^m z_2^n , \tag{1}$$

$$|F(z_1,z_2)| \leqslant Ae^{\sigma_1|z_1| + \sigma_2|z_2|} , \tag{2}$$

where A, σ_1, σ_2 are positive constants,

$$f(z_1,z_2) = \sum_{m,n} \frac{a_{mn}}{z_1^{m+1} z_2^{n+1}} . \tag{3}$$

Let the plane $\Pi(\varphi_1,\varphi_2)$ consist of all points

Card 1/4

The Characteristic of Increase of an Entire Function of Two Variables and its Application for the Summation of Double Power Series

(4) $z_1 = r_1 e^{i\varphi_1}$, $z_2 = r_2 e^{i\varphi_2}$

for fixed φ_1, φ_2 and variable r_1 and r_2. Let $T(\varphi_1, \varphi_2)$ be the set of those points $\nu = (\nu_1, \nu_2)$ of the plane $\Pi(\varphi_1, \varphi_2)$, for which the following condition is satisfied: To every $\nu \in T(\varphi_1, \varphi_2)$ there exists a positive constant $A = A(\nu)$, so that for fixed φ_1, φ_2 and arbitrary r_1, r_2 there holds $|F(r_1 e^{i\varphi_1}, r_2 e^{i\varphi_2})| \leq A e^{\nu_1 r_1 + \nu_2 r_2}$.

Let $C(\varphi_1, \varphi_2)$ be theset of those points $c = (c_1, c_2)$ of $\Pi(\varphi_1, \varphi_2)$, which satisfy the following condition : All points $z = (z_1, z_2)$ of the fourdimensional space R_4 of the variables z_1, z_2 for which $\mathrm{Re}(z_1 e^{-i\varphi_1}) \geq c_1$, $\mathrm{Re}(z_2 e^{-i\varphi_2}) \geq c_2$, are points of regularity of $f(z_1, z_2)$.

Card 2/4

The Characteristic of Increase of an Entire Function of Two Variables and its Application for the Summation of Double Power Series

If the planes $\Pi(\varphi_1, \varphi_2)$ for different fixed φ_1, φ_2 are brought to a coincidence by considering r_1 and r_2 in (4) as point coordinates in the coinciding plane, then the domains $T(\varphi_1, \varphi_2)$ and $C(\varphi_1, \varphi_2)$ can be compared for different systems of angles.
Principal result: For a coincidence of $\Pi(\varphi_1, \varphi_2)$ and $\Pi(-\varphi_1, -\varphi_2)$ for the closures it holds:

$$\overline{T}(\varphi_1, \varphi_2) = \overline{C}(-\varphi_1, -\varphi_2).$$

This result is a generalization of the well-known theorem of Polya [Ref 4] and, for $n = 2$, it improves a similar older result of the author [Ref 3] (less assumptions). In the last paragraph of the present paper the obtained results are used in order to determine the region of summation of a double power series with the aid of the

The Characteristic of Increase of an Entire Function of Two Variables and its Application for the Summation of Double Power Series

integral method of Borel [Ref 1]. The construction method forms a natural analogy of the polygon of Borel but the domain of summability is no longer convex.
There are 5 ref., 2 of which are Soviet, 1 American, 1 German, and 1 French.

SUBMITTED: April 30, 1957

Card 4/4

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AUTHOR: Ivanov, V.K.

TITLE: On a Boundary Value Problem Connected With Analytic Functions of Two Complex Variables

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1960, No. 6, pp. 103 - 113

TEXT: Let

(2.1) $z_1 = x_1 + iy_1$, $z_2 = x_2 + iy_2$

and

(2.2) $z_1 = r \cos\theta\, e^{i\varphi_1}$, $z_2 = r \sin\theta\, e^{i\varphi_2}$.

Let K_j be the wedge $0 \leq \arg z_j \leq \alpha_j$, $j = 1,2$, in the z_j-plane. Let the biwedge K be the topological product $K = K_1 \times K_2$. Let $f(z_1, z_2)$ be an analytic function of the variables z_1 , z_2 .

(1.1) $u(x_1, y_1, x_2, y_2,) = \mathrm{Re}\, f(z_1, z_2)$

Card 1/4

On a Boundary Value Problem Connected With Analytic Functions of Two Complex Variables

is called a biharmonic function.

(1.3) $v(x_1,y_1,x_2,y_2) = \mathrm{Re}\ f(\overline{z_1}, z_2)$

is called an antibiharmonic function.

Problem : Determine in K a function

(3.1) $w = r^{\varrho} H(\theta, \varphi_1, \varphi_2) = r^{\varrho} H^{(1)}(\theta, \varphi_1, \varphi_2) + r^{\varrho} H^{(2)}(\theta, \varphi_1, \varphi_2)$

which satisfies the following conditions : 1)

(3.2) $u = r^{\varrho} H^{(1)}(\theta, \varphi_1, \varphi_2)$ and $v = r^{\varrho} H^{(2)}(\theta, \varphi_1, \varphi_2)$

are biharmonic and antiharmonic, respectively : 2)

(3.3) $H^{(1)}(\theta, \varphi_1, \varphi_2) = o(\theta^{-\varepsilon})$, $H^{(2)}(\theta, \varphi_1, \varphi_2) = o(\theta^{-\varepsilon})$

for $\theta \to 0$, $H^{(1)}(\theta, \varphi_1, \varphi_2) = o\left(\left(\frac{\pi}{2} - \theta\right)^{-\varepsilon}\right)$, $H^{(2)}(\theta, \varphi_1, \varphi_2) = o\left(\left(\frac{\pi}{2} - \theta\right)^{-\varepsilon}\right)$

On a Boundary Value Problem Connected With Analytic Functions of Two Complex Variables

for $\theta \to \frac{\pi}{2}$, where ϵ is an arbitrary positive number. 3) For an approximation to the topological product of the boundaries of K_1 and K_2 , for almost all θ , w assumes prescribed boundary values

$$(3.4)\quad \begin{aligned} w(r,\theta,0,0) &= r^{\varrho} h_{oo}(\theta) \quad , \quad w(r,\theta,0,\alpha_2) = r^{\varrho} h_{o1}(\theta) \\ w(r,\theta,\alpha_1,0) &= r^{\varrho} h_{1o}(\theta) \quad , \quad w(r,\theta,\alpha_1,\alpha_2) = r^{\varrho} h_{11}(\theta) \quad , \end{aligned}$$

where $h_{\lambda\ \mu}(\theta)$ are measurable functions uniformly bounded for almost all θ.

(4) $0 < \varrho < \frac{\pi}{\alpha_j}$, $j = 1,2,$, where α_j is the opening angle of K_j .

After introducing a new variable $t = \ln \operatorname{tg} \theta$ the author proves the existence of the solution by applying complex Fourier transformations in t. The proof of uniqueness is given with the aid of the principle of Phragmen-Lindelöf which is extended to the functions

88182

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On a Boundary Value Problem Connected With Analytic Functions of Two Complex Variables

$$f(z_1,\overline{z_1},z_2) = f_1(z_1,z_2)\cdot f_2(\overline{z_1},z_2) \quad , \left|f(z_1,\overline{z_1},z_2)\right| \leq M_1 \quad .$$

The continuous dependence of the solution on the inital conditions is proved.
The author mentions B.Ya.Levin. There are 3 references : 2 Soviet and 1 English.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni A.M. Gor'kogo (Ural State University imeni A.M. Gor'kiy)

SUBMITTED: December 20, 1958

Card 4/4

Ivanov, V. K.

PHASE I BOOK EXPLOITATION SOV/5931

Issledovaniya po sovremennym problemam teorii funktsiy kompleksnogo peremennogo; sbornik statey (Investigation of Modern Problems in the Theory of Complex Variables; Collection of Articles) Moscow, Fizmatgiz, 1960. 5?? p. 3,000 copies printed.

Ed. (Title page): A. I. Markushevich; Eds. (Inside book): V. S. Vidensk[illegible] and S. Ya. Khavinson; Tech. Ed.: N. Ya. Murashova.

PURPOSE: This book is intended for specialists in the theory of functions of a complex variable. It may also be used by advanced university students, scientific workers, and specialists in other fields of mathematics.

COVERAGE: The book contains 43 papers originally read at the Third All-Union Conference on the Theory of Functions of a Complex Variable held at Moscow University from May 28 to June 2 1957. The articles treat problems in the modern theory of functions and its applications. The book is divided into 7 parts. The first part discusses the problem of monogeneity, power series, boundary and extremal properties. The second part discusses entire functions and interpolation and approximation problems. The third part discusses functions of many complex variables. The fourth part [illegible] conformal mappings and boundary-value problems. The [illegible] Riemann surfaces and the theory of distribution [illegible] discusses generalized analytic function[illegible] miscellaneous problems. [illegible] accompany each [illegible]

PART III

PART IV

PART V

(2/4)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619130003-8"

S/140/61/000/002/001/009
C111/C222

AUTHOR: Ivanov, V.K.

TITLE: On the growth indicatrix of an entire function of two complex variables

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, no.2, 1961, 24-31

TEXT: The author's aim is a transfer of the notion "growth indicatrix" to functions of two variables so that a property analogous to the trigonometric convexity remains preserved.

Let

$$z_1 = x_1+iy_2, \quad z_2 = x_2+iy_2, \tag{2.1}$$

$$z_1 = r\cos\theta\, e^{i\varphi_1}, \quad z_2 = r\sin\theta\, e^{i\varphi_2}. \tag{2.2}$$

In the biwedge K defined by

$$0\leq r<+\infty, \quad 0\leq\theta<\frac{\pi}{2}, \quad 0\leq\varphi_1\leq\alpha_1, \quad 0\leq\varphi_2\leq\alpha_2 \tag{2.3}$$

the author considers functions

$$F(z_1,\bar{z}_1,z_2) = F_1(z_1,z_2)F_2(\bar{z}_1,z_2), \tag{1.3}$$

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where $F_1(z_1,z_2)$ and $F_2(\overline{z}_1,z_2)$ are entire functions of their arguments. Let $M(r)$ be the maximum of the absolute value of $F(z_1,\overline{z}_1,z_2)$ on $|z_1|^2+|z_2|^2 = r^2$. The order and type of $F(z_1,\overline{z}_1,z_2)$ are defined by

$$\rho = \overline{\lim_{r\to\infty}} \frac{\ln \ln M(r)}{\ln r} \qquad (2.4)$$

$$\sigma = \overline{\lim_{r\to\infty}} \frac{\ln M(r)}{r^{\rho}} . \qquad (2.5)$$

It is assumed that

$$\rho < \frac{\pi}{\alpha_1} , \rho < \frac{\pi}{\alpha_2}, \sigma < +\infty \qquad (2.6)$$

is always satisfied.

$$h(\theta, \varphi_1, \varphi_2) = \overline{\lim_{r\to\infty}} \frac{\ln|F(r\cos\theta e^{i\varphi_1}, r\cos\theta e^{-i\varphi_1}, r\sin\theta e^{i\varphi_2})|}{r^{\rho}} \qquad (2.7)$$

is called the growth indicatrix of $F(z_1,\overline{z}_1,z_2)$.

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Theorem 1: For every fixed system of the values φ_1 and φ_2 the growth indicatrix $h(\theta, \varphi_1, \varphi_2)$ of $F(z_1, \bar{z}_1, z_2)$ is summable with respect to θ in the interval $\left[0, \frac{\pi}{2}\right]$.

Let Q be the region which is cut out of the unit sphere r = 1 by the biwedge K. The totality of the four lines

$$0 \leq \theta \leq \frac{\pi}{2}, \quad \varphi_1 = 0 \text{ or } \alpha_1, \quad \varphi_2 = 0 \text{ or } \alpha_2 \tag{4.2}$$

is called the skeleton L of Q.

Theorem 2: Let $h(\theta, \varphi_1, \varphi_2)$ be the growth indicatrix of the function $F(z_1, z_1, z_2)$ of finite order ρ and type σ, let Q be the region defined by

$$0 \leq \theta \leq \frac{\pi}{2}, \quad 0 \leq \varphi_1 \leq \alpha_1, \quad 0 \leq \varphi_2 \leq \alpha_2, \tag{4.1}$$

where

$$\alpha_1 < \frac{\pi}{\rho}, \quad \alpha_2 < \frac{\pi}{\rho}.$$

Then there exists a single bispherical function $H(\theta, \varphi_1, \varphi_2)$ with the properties

1) on L it holds

$$H(\theta; L) = h^*(\theta; L); \tag{6.1}$$

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2) in Q-L it holds

$$h(\theta, \varphi_1, \varphi_2) \leq H(\theta, \varphi_1, \varphi_2). \qquad (6.2)$$

Theorem 2 shows that the growth indicatrix defined by (2.7) indeed has a property analogous to the trigonometric convexity.
The author mentions A.A.Temlyakov. There are 3 Soviet-bloc references.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im.A.M.Gor'kogo
(Ural State University im.A.M.Gor'kiy)

SUBMITTED: January 27, 1959

IVANOV, V.K.

One boundary value problem connected with analytic functions of two complex variables. Izv. vys. ucheb. zav. mat. no. 6:103-113, 196

1. Ural'skiy gosudarstvennyy universitet im. A.M. Gor'kogo.
(Boundary value problems)
(Functions of complex variables)

IVANOV, V.K.

Generalization of the Voronoi-Hardy indentity. Sib.mat.zhur. 3 no.2:195-212 Mr-Ap '62. (MIRA 15:4)
(Convex domains) (Functions, Entire)

34814
S/020/62/142/005/003/022
B112/B102

16.4600

AUTHOR: Ivanov, V. K.

TITLE: Integral equations of the first kind and approximate solution of the inverse potential problem

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 5, 1962, 998-1000

TEXT: The equation $Ax_0 = y_0$ with a discontinuous inverse operator A^{-1} is investigated. It is assumed that a sequence $M_1 \subset M_2 \subset \ldots \subset M_n \subset \ldots$ of closed sets M_n exists such that x_0 is a limit point of the sum $\sum_{n=1}^{\infty} M_n$. Minimum values x_n of $\|Ax - y_0\|$ on M_n can be regarded as approximate solutions of $Ax_0 = y_0$. As an example, the inverse plane potential problem is considered. Reference is made to I. M. Lavrent'yev (DAN, 127, No. 1, 31 (1959)) and P. S. Novikov(DAN, 18, No. 3, 165 (1938)). There are 6 references: 3 Soviet and 3 non-Soviet. The three references

Card 1/2

Integral equations of the first kind and ...

to English-language publications read as follows: J. Douglas, T. M. Gallie, Duke Math. J., 26, No. 3, 339 (1959); M. Frank, Ph. Wolf, Naval Res. Logistics Quarterly, 3, 95 (1956); J. B. Rosen, Bull. Am. Math., Soc., 63, No. 1, 15 (1957).

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Ural State University imeni A. M. Gor'kiy)

PRESENTED: October 23, 1961, by S. L. Sobolev, Academician

SUBMITTED: October 14, 1961

Card 2/2

IVANOV, V. K.

"On an incorrectly stated problem"

report submitted at the Intl Conf of Mathematics, Stockholm, Sweden, 15-22 Aug 62

IVANOV, V.K.

Linear incorrect problems. Dokl.AN SSSR 145 no.2:270-272 Jl '62.
(MIRA 15:7)

1. Ural'skiy gosudarstvennyy universitet imeni A.M.Gor'kogo.
Predstavleno akademikom S.L.Sobolevym.
(Topology)

IVANOV, V.K.; KAZAKOVA, L.E.

Application of analytic functions to the inverse problem of the potential. Sib.mat.zhur.4 no.6:1311-1317 N-D '63. (MIRA 17:9)

L 12787-63 EWT(d)/FCC(w)/BDS AFFTC IJP(C)
ACCESSION NR: AP3002757 S/0039/63/061/002/0211/0223

AUTHOR: Ivanov, V. K. (Sverdlovsk)

TITLE: Improperly stated problems

SOURCE: Matematicheskiy sbornik, v. 61, no. 2, 1963, 211-223

TOPIC TAGS: partial differential equation, improperly stated problem, potential problem, Beta-stability, best approximation, quasi-solution

ABSTRACT: A properly stated problem in partial differential equations of mathematical physics is one whose solution satisfies the following conditions: 1) it exists, 2) it is unique, and 3) it depends continuously on the initial data (it is stable). In modern applications many problems arise which cannot be properly stated. The majority of improperly stated problems can be reduced to integral or functional equations of first order. Section 1 deals with proper statements. Various improper problems are discussed, and a new statement is given which consists of substituting a best approximation for the exact solution. The quasi-solution given in this section is a generalization of the usual solution and coincides with the true solution when the latter exists. In section 2 the author shows that the quasi-solution has stability in the usual sense (Beta-stability). The main diffi-

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L 12787-63
ACCESSION NR: AP3002757

culties arise in the absence of uniqueness. Here one must draw on the theory of spaces composed of closed sets, e.g., "Zerlegungsraume" by P. Alexandroff and H. Hopf (Topologie, I, Berlin, Springer, 1935) and B-continuity of multi-valued mappings in Ye. A. Barbashin (K teorii obobshchenny*kh dinamicheskikh sistem, Uchenу*ye zapiski MGU, matematika, t. 2, vy*p. 135 (1949), 110-134). As a corollary, the author finds that, with uniqueness, in many important cases the quasi-solutions satisfy the classical conditions of proper problems. In section 3 he considers one of the approximating methods for finding quasi-solutions. As illustration he gives examples from the reverse potential problem and the Cauchy problem for the Laplace equation. Orig. art. has: 34 formulas.

ASSOCIATION: none

SUBMITTED: 20Mar62 DATE ACQ: 17Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 023 OTHER: 013

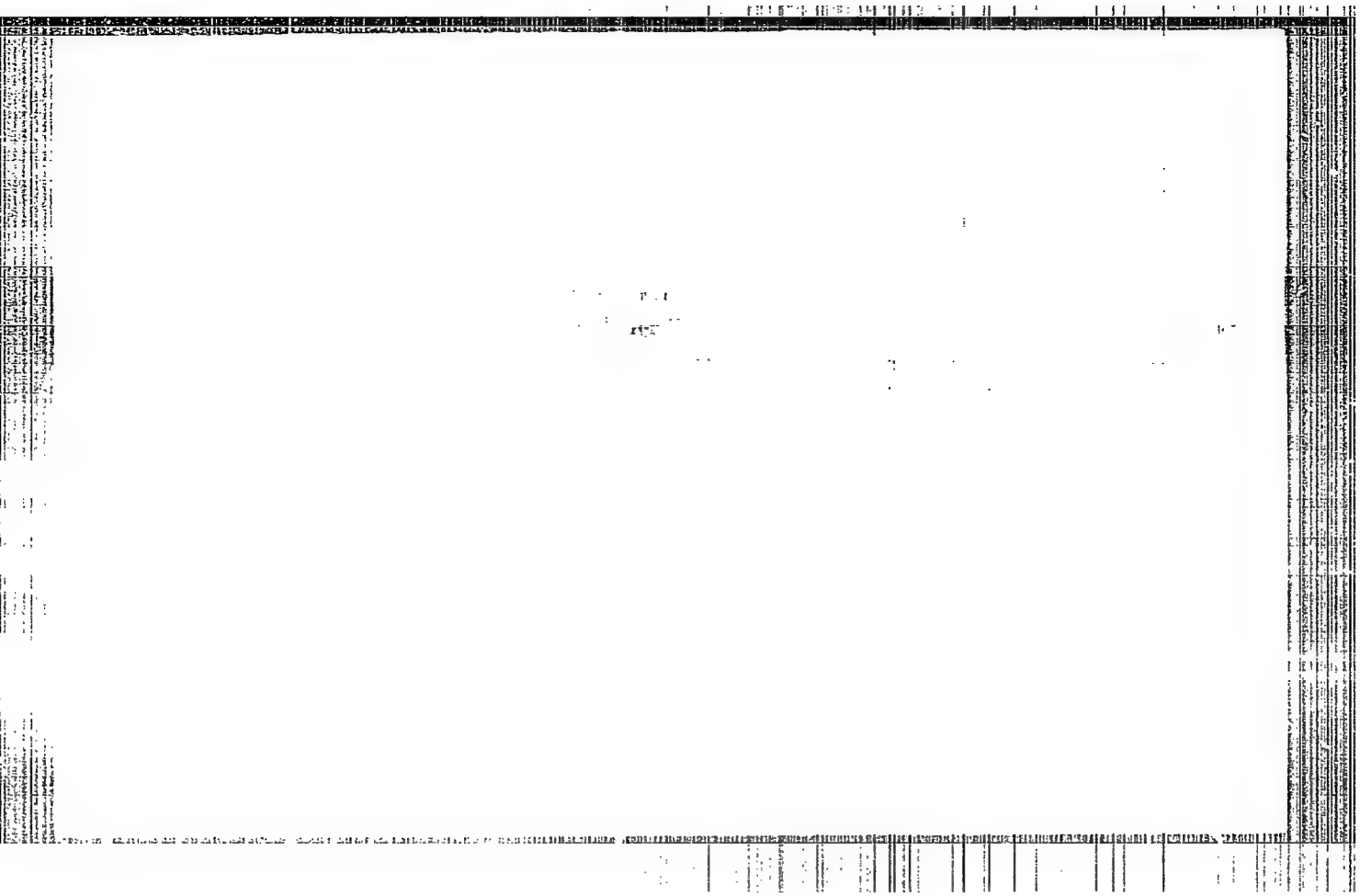
Card 2/2

SOURCE: Ref. zh. Matematika, Abs. 7B511

AUTHOR: Agevaya, T. G.; Ivanov, V. K.

TRANSLATION: A stable solution is offered for a problem having the initial data for

where LU is an elliptic operator of form



APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000619130003-8"

Title: Incorrect linear equations and exceptional cases of correlation equations

Source: ZVUZ. Matematika, no. 4, 1964, 69-74

TOPIC TAGS: integral equation, linear operation, algebra

Abstract: The authors show that certain exceptional cases of integral equations of the correlation type and first-order equations are incorrect in the classical sense and give a method for their approximate solution.

[illegible]

where $y \in Y$ is a given element and $x \in X$ an unknown element; X and Y are [illegible] linear operators from X into Y. [illegible]

[illegible]

[illegible] The theory developed is used to solve

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L 20030-65
ACCESSION NR: AP5003633

exceptional cases of second-order convolution equations, as well as first-order equations. The method suggested for the solution of equations of the indicated type is effective by virtue of the fact that the problem re- [illegible] system of algebraic equations, a task [illegible]. Orig. art. has 5 formulas.

ASSOCIATION: none

SUBMITTED: 21Apr63 ENCL: 00 SUB CODE: MA

NO REF SOV: 006 OTHER: 002 JPRS

Card 2/2

L 57195-65 EWT(d)/T IJP(c)

ACCESSION NR: AP5012027 UR/0376/65/001/001/0133/0136

AUTHOR: Ivanov, V. K.

TITLE: Cauchy problem for the Laplace equation in an infinite strip

SOURCE: Differential'nyye uravneniya, v. 1, no. 1, 1965, 133-136

TOPIC TAGS: differential equation, Laplace equation

ABSTRACT: Using a generalized function type regularization, the author is able to proceed from a classical solution of

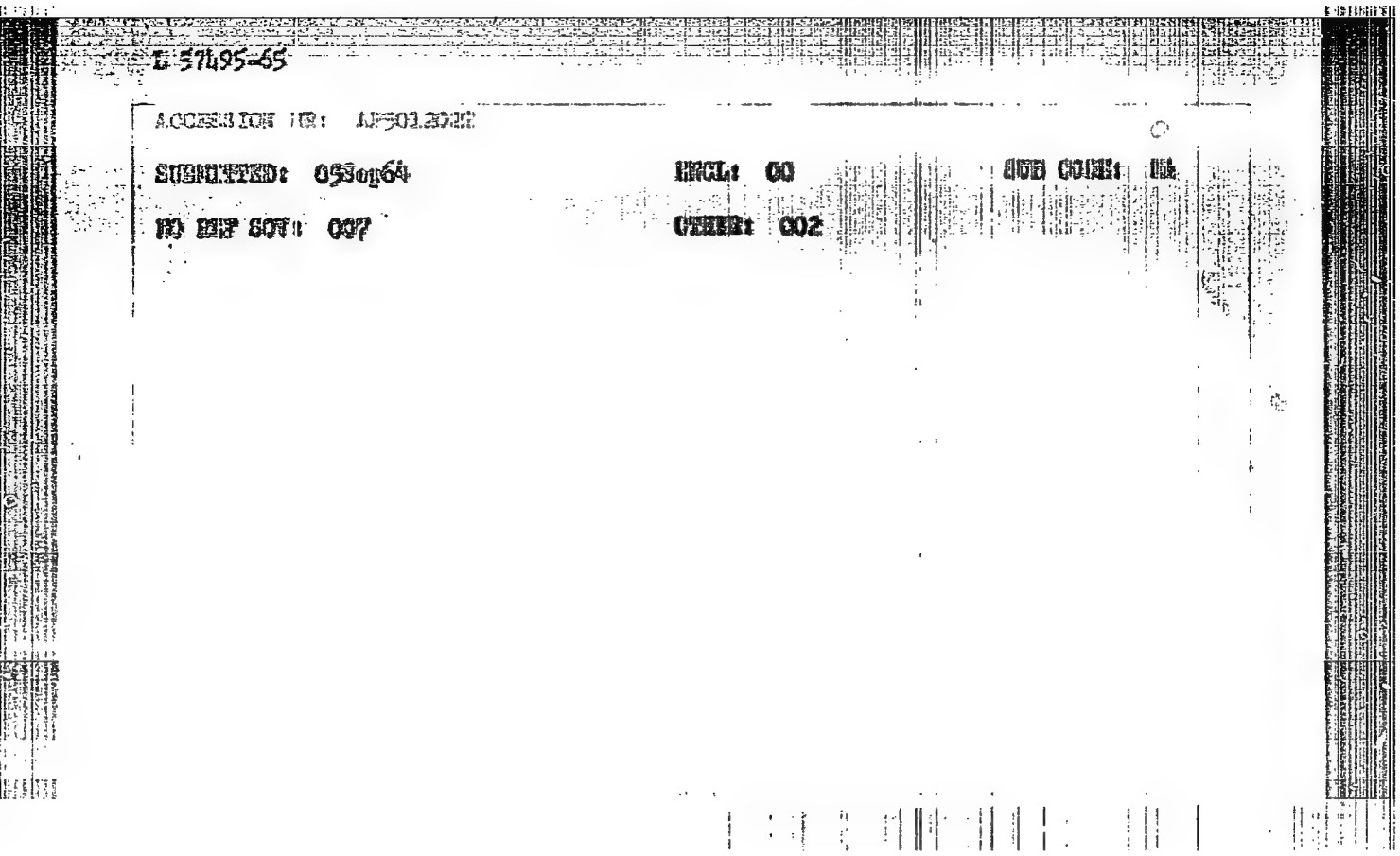
$$\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$$

subject to $u(x,0) = f(x)$, $u_y'(x,0) = g(x)$ where f and g are analytic in $-\infty < x$ [illegible] and continuous in the closure of this strip, using Fourier [illegible] $f(x)$ and $g(x)$ [illegible]. [Orig.

transforce to the solution in the case when f(x) and g(x) are only bounded. Orig. art. has 11 formulas.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im. A. M. Gor'kogo (Ural State University)

Card 1/2



IVANOV, V.K. (Sverdlovsk)

Existence of the fundamental function of a linear differential operator with constant coefficients under conditions of periodicity. Izv.vys.ucheb.zav.; mat. no.1:62-67 '65.

(MIRA 18:3)

DOMBROVSKAYA, I.N.; IVANOV, V.K.

On the theory of certain linear equations in abstract spaces. Sib. mat. zhur. 6 no.3:499-509 My-Je '65. (MIRA 18:8)

IVANOV, V.K.

A type of incorrect linear equations in topological vector spaces. Sib. mat. zhur. 6 no.4:832-839 Jl-Ag '65. (MIRA 18:10)

GLUSHENKO, N.V.; IVANOV, V.K.; LAPKIN, I.Yu.; PODOBA, B.G.; REDICHKIN, N.A.

Key section of the Lower Permian Assel' stage in the south of the Russian Platform. Biul. MOIP. Otd. geol. 39 no.2:81-84 Mr-Ap '64. (MIRA 19:1)

L 07257-67 EWT(d) IJP(c)
ACC NR: AP6018636 SOURCE CODE: UR/0208/66/006/003/0570/0576

AUTHOR: Dolgopolova, T. F. (Sverdlovsk); Ivanov, V. K. (Sverdlovsk)

ORG: none

TITLE: Numerical differentiation

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 6, no. 3, 1966, 570-576

TOPIC TAGS: numeric solution, differentiation error, approximation calculation, approximation error

ABSTRACT: Various articles dealing with numerical differentiation substitute the function $f(x)$, which is to be differentiated, by an approximation polynomial $p(x)$, and this is followed by an estimate of the $|f'(x) - p'(x)|$ error. However, unlike integration, numerical differentiation belongs to inaccurate problems: one can always find cases where for an arbitrarily small deviation of the known approximate function $f_\delta(x)$ from the exact one $f(x)$ their derivatives may differ by an arbitrarily large amount. Consequently, there is a need for a theory of inaccurate problems. The present authors use a modification of the regularizing method due to A. N. Tikhonov (Dokl. AN SSSR, 1963, 151, no. 3, 501-504) which permits the establishment of a polynomial $p_\delta(x)$, uniformly approaching $f'(x)$, from the function $f_\delta(x)$. In this modification, an operator equation of the first kind is solved in which instead of requiring

Card 1/2 UDC: 518:517.949.12

L 07257-67

ACC NR: AP6018636 O

that the operator be continuous, one demands only that it be closed. The basic results are presented in the form of five theorems. Orig. art. has: 43 formulas.

SUB CODE: 12/ SUBM DATE: 03Jul65/ ORIG REF: 006/ OTH REF: 005

Card 2/2 pla

L 37699-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/HW/JG/WB

ACC NR: AT6023742 (A,N) SOURCE CODE: UR/2755/66/000/005/0163/0172

58
55
B+1

AUTHOR: Beskorovaynyy, N. M.; Ivanov, V. K.; Petrashko, V. V.

ORG: none

TITLE: Corrosion of chromium-nickel stainless steel in lithium

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chistykh metallov, no. 5, 1966, 163-172

TOPIC TAGS: stainless steel, ~~chromium-nickel steel~~, steel corrosion, lithium induced corrosion, corrosion resistance, ~~steel~~, chromium steel, nickel containing steel, lithium, corrosion

ABSTRACT: Three series of 1Kh18N9T stainless-steel specimens were tested for corrosion behavior in lithium at 700C for 10 or 200 hr. Series 1 and 2 specimens were tested in lithium containing a small amount of C^{14} isotope and in tanks made of 1Kh18N9T steel (series 1) or Armco-iron (series 2). In the case of series 3 specimens, the lithium contained 0.1% carbon in addition to C^{14} and the tanks were made of Armco-iron. The corrosion was found to follow the same pattern under all the conditions tested, and was characterized by a gradual dissolution of chromium and nickel from the surface layer of the specimens. With decreasing chromium and nickel content the steel changes its structure and gradually loses its corrosion resistance. Microporosity formed in points previously occupied by chromium and nickel

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L 37699-66

ACC NR: AT6023742 3

lowers considerably the steel ductility. The carbon content in lithium and tank material were found to have a marked effect on the intensity of processes associated with corrosion. The most intensive loss of chromium and nickel was observed in series 2 and 3 specimens in which in 200 hr the chromium content in the surface layer dropped by 50% and the nickel content, by 45 and 50% of the original content, respectively. Specimens of series 1 under the same conditions lost 10% of their chromium and 30% of their nickel. Accordingly, the elongation of the series 1, 2, and 3 specimens dropped from the original 48.2% to 47.1, 26.4, and 24.4%, respectively. Carbon contained in lithium was found to diffuse into the steel. However, in the first hours of the test, carbon concentrates primarily in the surface layer. As the chromium content in the surface layer drops, carbon migrates inside, following the front of original chromium content. Orig. art. has: 7 figures and 4 tables. [DV]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 005/ ATD PRESS: 5041

chromium-nickel steel

Card 2/2

BUTKIN, Ye.I., kand.veterinarnykh nauk; Prinimal uchastiye IVANOV, V.L., vrach-bakteriolog

Effectiveness of living antipasteurellosis vaccine. Veterinariia 39 no.12:37-38 D '62. (MIRA 16:6)

1. Kurskaya oblastnaya nauchno-proizvodstvennaya veterinarnaya laboratoriya.
(Kursk Province--Chicken cholera--Preventive inoculation)

ACCESSION NR: AP3000496 S/0145/63/000/001/0117/0129

AUTHOR: Ivanov, V. L. (Candidate of technical sciences)

TITLE: Investigation of heat transfer in a closed channel with natural convection and changing composition of the heat conducting medium

SOURCE: Izv. VUZ: Mashinostroyeniye, no. 1, 1963, 117-129

TOPIC TAGS: heat transfer, closed channel heat transfer, film condensation, natural convection, evaporation heat transfer, turbine blade cooling

ABSTRACT: Experimental and theoretical investigations were performed on heat transfer in closed channels with natural convection during change of state of the conducting medium. Of particular interest was the application of this process to cooling of gas turbine blades. The convection loop in a closed channel is set up as follows. The medium is evaporated at the hot end, and the vapors rise towards the cold end, are condensed, and flow down in a film along the walls. The fluid was air heated and either air cooled or water cooled. Water and HCO_2Cl_3 were used as the heat transfer medium. The following observations were made: 1) a film did form along the length of a channel and vapor rose in the center; 2) depending on the

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ACCESSION NR: AP3000496

amount of fluid in the apparatus, the fluid film would cover all the heated section (2-2.5 cm^3 water) and cool, or it would just reach the heated section (less than 2 cm^3) and provide no cooling, or it would form a column on the bottom which periodically surged up (more than 2.5 cm^3) but would provide the same cooling; 3) the temperature in the apparatus settles on the temperature of the saturated liquid at the chamber pressure; 4) for less than 3 cm^3 of water the film could be broken by wall imperfections (thus disrupting the cooling process). For 3 cm^3 and more the surging column would restore the film. Based on these observations, a theoretical model was established, and the equations were derived. The average heat transfer coefficients along the length were found from $Nu_e = 0.67 \times C_i (Ar \cdot Pr \cdot K)^{0.25}$, where Nu_e = Nusselt number, Ar = Archimedes number, Pr = Prandtl number, K = Kirpichev number, and C_i was derived for cylindrical and flat channels (it varied from 1.4 - 0.4 for different conditions). The effects of Coriolis force and of centrifugal force in a rotating model were considered, and both the static and rotating models were studied experimentally. As predicted, it was found that in a rotating model the fluid film could not be disturbed by imperfections and that

Card 2/3

ACCESSION NR: AP3000496

Coriolis forces produced no ill effects. Orig. art. has: 9 figures and 7 formulas.

ASSOCIATION: MVTU im. N. E. Baumane (MVTU)

SUBMITTED: 25Apr62 DATE ACQ: 21Jun63 ENCL: 00

SUB CODE: PH NO REF SOV: 001 OTHER: 002

Card 3/3

KAPLAN, V.V.; NASHATYR', V.M.; IVANOV, V.L.

Methods of synthetic testing of high-voltage switches for their disconnecting ability. Izv. vys. ucheb. zav.; elektromekh. 1 no.5:63-71 '58. (MIRA 11:8)
(Electric switchgear--Testing)

110-58-6-7/22

AUTHORS: Kaplan, V.V., Nashatyr', V.M., Candidates of Technical Sciences and Ivanov, V.L., Engineer.

TITLE: Switching Over-voltages When Using Small-oil-volume Circuit-breaker Type MG-110 to Disconnect Unloaded Transformers and Lines (Kommutatsionnyye perenapryazheniya pri otklyuchenii malomaslyanym vyklyuchatelem tipa MG-110 nenagruzhennykh transformatorov i liniy)

PERIODICAL: Vestnik Elektropromyshlennosti, 1958, Nr 6, pp 31 - 37 (USSR)

ABSTRACT: Over-voltages that are set up when switching unloaded lines and transformers largely determine the insulation level. Over-voltage measurements can rarely be made on full-scale systems and laboratory tests of circuit-breakers are therefore necessary. The article describes tests on a 110-kv small-oil-volume circuit breaker of 2 500 MVA, type MG-110, built by the Elektroapparat Works, breaking small inductive and capacitive currents. The tests were made in the Gorev laboratory of the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnical Institute) on equivalent circuits specially designed for this application and using oscillatory circuits as the source of e.m.f.

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110-58-6-7/22

Switching Over-voltages When Using Small-oil-volume Circuit-breaker Type MG-110 to Disconnect Unloaded Transformers and Lines

The circuit of Figure 1 was employed in experiments on disconnecting an unloaded transformer. As the oscillatory circuit can provide undamped oscillations for only a short time, the test must be so arranged that steady no-load current flows in the transformer as soon as possible after it is connected to the supply. Therefore, the transformer is connected through a damping resistance.
The first tests were made with the transformer de-magnetised by a special procedure. The test procedure is fully described. The circuit-breaker was tested under single-phase conditions, to represent disconnection by one pole of the circuit-breaker of a transformer with grounded neutral. The test voltage equalled the system phase-voltage. To represent tests on transformers with unearthed neutral, some of the tests used a voltage of one-and-a-half times the system voltage. Tests were made with one arc-quenching chamber and with two connected in series. Other tests corresponded to disconnection of three-phase transformers with earthed and isolated neutral, with outputs of 31.5 to 189 MVA. The current amplitude ranged from 6 to 64 A.

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Switching Over-voltages When Using Small-oil-volume Circuit-breaker Type MG-110 to Disconnect Unloaded Transformers and Lines

The circuit-breaker was tested both with and without arrangements for high-speed reclosure. The results of all the tests are summarised in Figure 2. They show that both types of small-oil-volume circuit-breaker successfully break transformer magnetising current without appreciable over-voltages. In most tests, the over-voltage was not more than double the normal power-frequency voltage and in one case, only, it rose to 240%. For a given value of current there is considerable scatter of the time for which the arc burns: in most cases it was from 0.01 to 0.03 sec and only occasionally did it rise to 0.04 sec when the current was more than 30A. The relationship between the over-voltage factor on the transformer and the number of occurrences as a percentage of the total is plotted in Fig.3, which shows that, over the current range 5 - 15 A, the highest over-voltage was 134% of the normal value. Oscillograms showed that the current was interrupted somewhat before the current would normally pass through zero and whilst it still had some finite value. This effect is important in evaluating the operation of switchgear, since

Switching Over-voltages When Using Small-oil-volume Circuit-breaker Type MG-110 to Disconnect Unloaded Transformers and Lines

the instantaneous-current value at the instant of interruption largely governs the transformer over-voltage. Many attempts have been made to explain the phenomena of interrupting small inductive currents, but none is completely convincing. Typical current oscillograms at the instant of interruption are shown in Figure 4 and indicate that the effect of interruption at a finite current value may occur whether or not high-frequency oscillations are present. The conditions under which the arc becomes unstable in this way are discussed.

The process of this kind of interruption can be characterised by a system of differential equations relating the circuit-breaker current and the transformer inductive and capacitative currents. Calculated curves of the current at the moment of interruption are plotted in Figure 5 for the initial conditions of the oscillograms of Figures 4a and 4b. A comparison of curves 5a and 4a shows that the calculated current curves are near enough to the experimental ones. The time interval from the instant of start of fall

Switching Over-voltages When Using Small-oil-volume Circuit-breaker Type MG-110 to Disconnect Unloaded Transformers and Lines

of current to zero current is the same in both cases. Thus, it follows that the presence of high-frequency oscillations does not determine whether the current is interrupted before the normal zero, as is required by current theories of the subject. The new explanation offered in the article does not preclude occurrence of preliminary high-frequency oscillations but suggests that the mode of current interruption in any particular case depends on the conditions and that even with given conditions considerable scatter is observed.

Investigations on the circuit-breaker when disconnecting unloaded lines were made on an equivalent circuit with concentrated constants, as shown in Figure 6. The requirements that must be met to reproduce the actual conditions are stated and can be satisfied by this circuit. The source of undamped sinusoidal e.m.f. is a system of interconnected oscillatory circuits. Both types of breaker were tested whilst reproducing the conditions of an unloaded line of 200 km, which is about the longest Soviet 110-kV line. The power-frequency current interrupted was up to 40 A. The arc-suppression

Switching Over-voltages When Using Small-oil-volume Circuit-breaker Type MG-110 to Disconnect Unloaded Transformers and Lines

device of the small-oil-volume 220-kV circuit-breakers developed by the Elektroapparat Works (type MG-220) has four series arc-suppression chambers of the same construction as that used in the 110-kV breaker: hence, it was decided to verify the performance of the 220-kV breaker on a circuit equivalent to open lines 400 km long.
The tests were made on a single arc-suppression chamber and preliminary tests showed that such partial testing is accurate enough for practical purposes. In no case, did the over-voltage exceed double the normal value and the arc is finally interrupted before the contacts reach the fully-open position. Power-frequency current is usually interrupted at the first current-zero; then the arc usually re-strikes and finally the high-frequency interruption takes place, without, however, giving rise to high over-voltages. This re-striking effect is of a highly statistical nature; it may or may not occur under given conditions and the duration of the current also varies. Similar observations have been made by the Swedish ASEA company when testing small-oil-volume circuit breakers.

110-57-6-7/22

Switching Over-voltages When Using Small-oil-volume Circuit-breaker Type MG-110 to Disconnect Unloaded Transformers and Lines

On the basis of all the tests made, it is concluded that small-oil-volume circuit-breakers, types MG-110 and MG-110B successfully disconnect unloaded transformers and lines without giving rise to dangerous over-voltages.
There are 6 figures and 6 references, 1 of which is Soviet, 2 German and 3 English.

ASSOCIATION: Leningradskiy politekhnicheskiy institut (Leningrad Polytechnical Institute)

SUBMITTED: July 29, 1957

Card 7/7 1. Circuit breakers--Test results

8(2)

AUTHORS: Kaplan, V. V., Candidate of Technical Sciences, Nashatyr', V. M., Candidate of Technical Sciences, Ivanov, V. L., Engineer

SOV/105-58-11-7/29

TITLE: A Synthetic Method of Testing High-Voltage Switches (Sinteticheskiy metod ispytaniya vysokovol'tnykh vyklyuchateley)

PERIODICAL: Elektrichestvo, 1958, Nr 11, pp 29-35 (USSR)

ABSTRACT: In 1957 a wiring circuit was elaborated and put into practice at the Laboratoriya tekhniki vysokikh napryazheniy imeni Goreva Leningradskogo politekhnicheskogo instituta (Laboratory for High-Voltage Engineering imeni Gorev at the Leningrad Polytechnic Institute) on the basis of an oscillatory circuit. This makes it possible to test quick-break switches by synthetical means. The switches operate with a single automatic reclosure cycle (switching off - switching on - switching off). Conditions for carrying out equivalent synthetical switch tests in the automatic reclosure cycle and the basic wiring scheme of the testing device are described. The synthetic scheme was checked in connection with the testing of air-switches. The oscillogram obtained shows that with lacking compensation of current- and voltage reduction the amplitude of the switching-off

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current at the third operation of the automatic reclosure cycle is smaller by about 25% than that of the initial current. The re-established voltage is reduced by the same amount with respect to the initial voltage. - When testing switches by means of compensating circuits, the reduction of current and voltage is entirely avoided. The amplitudes of all three currents as well as the initial and re-established voltages have the same values. The electron beam oscillograms show that the synchronizing devices worked out permit a very accurate adjustment of the testing device. There are 6 figures and 3 Soviet references.

ASSOCIATION: Leningradskiy politekhnicheskiy institut
(Leningrad Polytechnic Institute)

SUBMITTED: January 20, 1958

IVANOV, V.L.; IVATSIK, Ye.Ye.; NASHATYR', V.M.; PIRYAZEVA, A.I.; SADOVSKIY, Yu.D.

Installation for combined testing of valve dischargers. Trudy LPI no.195:511-522 '58. (MIRA 11:10)
(Electric discharges)

8(2)
AUTHORS: Ivanov, V. I., Engineer, Nashatyr', V. M., SOV/105-59-7-16/30
Candidate of Technical Sciences, Polovoy, I. F., Candidate of Technical Sciences

TITLE: Some Problems of the Method of Testing High-voltage Insulation (Nekotoryye voprosy metodiki ispytaniy vysokovol'tnoy izolyatsii)

PERIODICAL: Elektrichestvo, 1959, Nr 7, pp 61 - 64 (USSR)

ABSTRACT: Three circuit diagrams of test devices are described, which were developed at the laboratory for high-voltage engineering imeni Gorev at the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute). Also the results obtained by investigations of their mode of operation are given. Most internal overvoltages, which are characteristic of 110 - 500 kv mains, may be represented with an accuracy that is sufficient for practical use as the sum of voltages of various frequencies and amplitudes, among them also of direct voltages. It is therefore possible to reproduce them by means of circuits which are based on the addition of these components, i.e. on the connection in series of some e.m.f. sources with the object to be investigated. Figure 1 shows the most simple circuit of an apparatus for the investigation of insulation in the case of internal overvoltages. The device is

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described. Such a circuit is difficult to construct if high test voltages are required, because for this purpose a reactor with high inductivity for very-high voltages and a rectifying device for a high voltage is nedessary. The circuit shown in figure 2 satisfies these conditions. According to this circuit, a test device with 5 oscillatory circuits was built. Figure 5 shows the third wiring diagram, in the case of which capacity, inductivity, and charging device for considerably lower voltages are used than in the circuit shown by figure 2. Therefore, it is possible in this case to select optimum parameters of the oscillatory circuit. However, the test-transformer must be suited for a considerably higher voltage. According to the circuit shown by figure 5, a device with a test transformer was constructed. The corresponding oscillograms for the circuits shown by figures 2 and 5 are given. On the basis of the investigation it was found that the production of circuits for the testing of various types of high-voltage insulation with voltages corresponding to the shape, size, and duration of internal overvoltages in the electric mains, presents no technical difficulties, and requires a comparatively uncomplicated equipment (reactors, condensers, etc). There are 6 figures and 7 references, 4 of which are Soviet.

Some Problems of the Method of Testing High-voltage Insulation SOV/105-59-7-16/30

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. Kalinina
(Leningrad Polytechnic Institute imeni Kalinin)

SUBMITTED: February 10, 1959

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IVANOV, V.L., inzh.

Effect of cooling on the hydraulic characteristics of a gas turbine. Izv.vys.ucheb.zav.; mashinostr. no.2:31-39 '60. (MIRA 14:4)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche imeni Baumana.
(Gas turbines--Cooling)

KAPLAN, V.V., kand.tekhn.nauk (Leningrad); NASHATYR', V.M., kand.tekhn.nauk (Leningrad); IVANOV, V.L., inzh. (Leningrad)

Statistical method for substantiating the selection of voltage in testing the interrupting capacity of circuit breakers. Elektrichestvo no.2:69-73 F '60. (MIRA 13:5)
(Electric circuit breakers)

ALEKSANDROV, G.N., kand.tekhn.nauk; IVANOV, V.L., inzh.

Study of the electrical strength of air gaps and suspension insulators in the presence of internal overvoltages. Elektrichestvo no.9:33-38 S '62. (MIRA 15:9)

1. Leningradskiy politekhnicheskiy institut imeni Kalinina.

(Electric lines--Overhead)
(Electric insulators and insulation)

L 11260-63 EWP(r)/EWT(1)/BDS--AFFTC/ASD
ACCESSION NR: AP3000494 S/0145/63/000/001/0097/0107

AUTHOR: Ivanov, V. L. (Candidate of technical sciences)

TITLE: Toward the calculation of nozzle-blade cooling by air

SOURCE: Izv. VUZ: Mashinostroyeniye, no. 1, 1963, 97-107

TOPIC TAGS: high-temperature turbine, blade cooling

ABSTRACT: The problem of nozzle-blade cooling in high-temperature turbines is examined. Both theoretical considerations and experimental research show that nozzle blades are exposed to air cooling in all systems of rotor-blade cooling. The choice of parameters of the cooling system is based on the temperature distribution on the blade surface and on the power losses in the cooling system. The calculation of the blade temperature is carried out on the basis of averaged parameters. The temperature field of the blade is divided into four distinct regions: 1) leading edge, 2) convex side, 3) concave side, and 4) trailing edge of the convex side. Equations describing the temperature

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L 11260-63
ACCESSION NR: AP3000494

variations in each of the regions are derived, and formulas are given for determining the temperature of the cooling air, the coefficients of heat transfer from the cooling air, and local values of the wall temperatures. A differential equation is derived for the determination of the pressure drop of the cooling air in the flow past the cooled surface of the blade, and a table of values of the integral constant is given. Orig. art. has: 38 formulas, 2 tables and 6 figures.

ASSOCIATION: MVTU im. N. E. Baumana

SUBMITTED: 25Apr62 DATE ACQ: 21Jun63 ENCL: 00

SUB CODE: PR,AE NO REF SOV: 001 OTHER: 002

lb/wm
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IVANOV, V.L., kand.tekhn.nauk

Investigating heat exchange in a closed channel under natural convection conditions in case of a change in the state of aggregation of the heat carrier. Izv.vys.ucheb.zav.;mashinostr.no. 1:117-129 '63.

(MIRA 16:5)

1. Moskovskoya vysshaya tekhnicheskoye uchilishche imeni Baumana.
(Heat--Transmission)

IVANOV, V.L.

AID Nr. 974-3 22 May

PRODUCING COOLING CHANNELS IN GAS TURBINE BLADES (USSR)

Ivanov, V. L., A. G. Zasimov, and I. M. Stanishevskiy. Energomashinostroyeniye, no. 4, Apr 1963, 31-34. S/114/63/000/004/003/005

The development of high-temperature gas turbines depends on the rational design of internally cooled turbine blades. Investigations to determine procedures for the manufacture of such blades have been carried out at the Research Laboratory of Turbine Construction, Moscow Higher Technical School, under the supervision of Professor V. V. Uvarov. The main problems were to reduce to a minimum the deviation of the airfoil profile from that of the uncooled blade, to assure maximal uniformity of the temperature field along the

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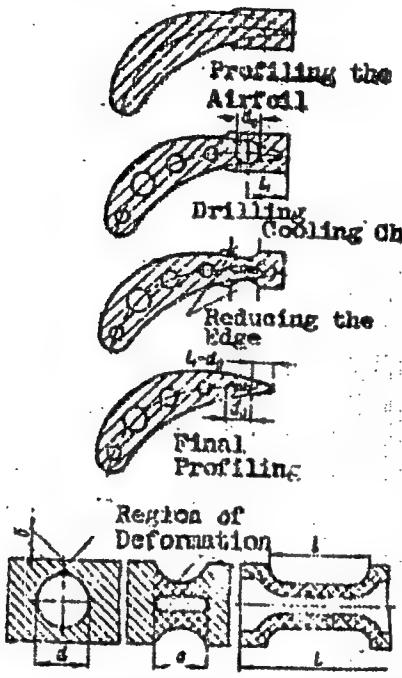
AID Nr. 914 3 22 May

PRODUCING COOLING CHANNELS [Cont'd] S/114/63/000/004/003/005

cross-sectional area of the airfoil, and to prevent overheating of the leading and trailing edges. The best overall solution found was to introduce a small



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AID Nr. 974-3 22 May

PRODUCING COOLING CHANNELS [Cont'd] S/114/63/000/004/003/005

oval-slit cooling channel near the trailing edge which would not increase the edge's thickness. The best method found was to drill a cylindrical channel near the trailing edge and then reduce the channel by means of punches or rollers (rollers were more productive). Experiments were carried out on ЭИ 612 [AISI 330] steel blades reducing channels 3 mm in diameter to slits 0.5 mm wide with or without preheating the blade. Although the strength of hot- and cold-deformed blades was the same after similar heat treatment, hot working is recommended since it does not require process annealing. [SS]

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IVANOV, V.L., kand. tekhn. nauk

Calculating heat transmission by a ribbed surface. Izv. vys. ucheb. zav.; mashinostr. no.9:174-183 '63.
(MIRA 17:3)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche imeni Baumana.

MANUSHIN, E.A., inzh.; IVANOV, V.L., kand. tekhn. nauk

Effect of cooling on hydraulic efficiency of the blading of a high-temperature gas turbine. Izv. vys. ucheb. zav.; mashinostr. no.9:184-189 '63. (MIRA 17:3)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche imeni Baumana.

ALEKSANDROV, G.N., kand. tekhn. nauk; IVANOV, V.L., inzh.

Dependence of the electrical strength of long air gaps on the frequency of the oscillatory voltage. Elektrichestwo no.6: 44-49 Je '64 (MIRA 17:7)

1. Leningradskiy politekhnicheskiy institut.

IVANOV, V.I., kand. tekhn. nauk

Approximate method for the analytical design of the cooling system of the vane lock of a gas turbine as proposed by I.T.Shvets and E.P.Dyban. Teploenergetika 12 no.5:95 My '65. (MIRA 18:5)

ALEKSANDROV, G.N., kand. tekhn. nauk; IVANOV, V.L., inzh.; MEDKOV, V.P., inzh.

Electrical strength of an air gap between the wire of a superhigh voltage transmission line and ground in the presence of internal overvoltages. Elektrichestvo no.4:20-24 Ap '65.

(MIRA 18:5)

1. Leningradskiy politekhnicheskiy institut.

IVANOV, V.L.

Test system for studying the characteristics of insulation in the presence of internal overvoltages. Izv. vys. ucheb. zav.; energ. 8 no.6:12-16 Je '65. (MIRA 18:7)

1. Leningradskiy politekhnicheskiy institut imeni Kalinina. Predstavlena kafedroy tekhniki vysokikh napryazheniy.

ACC NR: AP6017840 SOURCE CODE: UR/0147/66/000/002/0143/0150

AUTHOR: Ivanov, V. L.; Manushin, E. A.; Lapin, Yu. D. 50 B

ORG: none

TITLE: Some results of an experimental investigation of a cooled turbine

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 2, 1966, 143-150

TOPIC TAGS: gas turbine, high temperature turbine, turbine cooling, rotor blade, rotor blade cooling

ABSTRACT: The cooling of a high-temperature turbine rotor with a natural-convection liquid-cooling system has been investigated. The rotor blades were cooled by distilled water circulated by a high-pressure centrifugal pump. For measuring the temperature of the blades, 6 out of 30 rotor blades were equipped with three chromel-alumel thermocouples each. Water consumption and the temperature were measured in the water loop at the intake and exit from the rotor. The gas parameters were measured in front and behind the turbine. The maximum relative error in determining the temperatures of the gas and the rotor-blade surfaces was within 4%, and in estimating the gas flow rate through the turbine, 0.5%. Orig. art. has: 4 figures, 3 tables, and 6 formulas. [AV]

SUB CODE: 21 SUBM DATE: 10May65/ ORIG REF: 004/ OTH REF: 005/ ATD PRESS: 5009

Card 1/1 UDC: 621.438

ACC NR: AP7006676 (N) SOURCE CODE: UR/0145/66/000/010/0070/0072

AUTHOR: Ivanov, V. L. (Candidate of technical sciences, Lecturer); Lapin, Yu. D. (Candidate of technical sciences)

ORG: None

TITLE: Heat exchange under conditions of free convection in a section of a channel with localized resistance

SOURCE: IVUZ. Mashinsotroyeniye, no. 10, 1966, 70-72

TOPIC TAGS: convective heat transfer, flow analysis, hydraulic resistance, Nusselt number

ABSTRACT: The authors consider the characteristics of free convective heat exchange in a section of channel with local hydraulic drag (channel inlet). The fundamental relationship for this section in the case of turbulent flow conditions is

$$Nu^* = \frac{Q}{\lambda \Delta t_M D} = f(\zeta)(Gr\,Pr^2)^{0.5},$$

where λ is the coefficient of thermal conductivity for the heat-exchange medium, Q is the thermal flux in the channel, Δt_M is the variation in the average temperature of the heat-exchange medium in the input section, D is the diameter of the channel in the

Card 1/2 UDC: 621.438

ACC NR: AP7006676

blade, Nu* is the conditional Nusselt number, $f(\zeta)$ is a function of the coefficient of local hydraulic resistance at the channel input (ζ). It is shown that the function $f(\zeta)$ may be written as

$$f(\zeta) = f_1\left[\left(\frac{D}{d}\right)^2\right].$$

Experimental studies on stationary models confirm this relationship. Experimental data reduced to dimensionless form are satisfactorily described by the equation

$$Nu^* = \frac{Q}{\lambda \Delta t_\mu D} = A\,(Gr\,Pr^2)^{0.5},$$

Where A is a coefficient which depends on area ratio $\overline{F}$. Experimentally determined values of this coefficient are tabulated. The article was presented for publication by Doctor of technical sciences V. V. Uvarov, Professor at the Moscow Technical College im. N. E. Bauman. Orig. art. has: 1 figure, 1 table, 2 formulas.

SUB CODE: 20/ SUBM DATE: 30Mar66/ ORIG REF: 002

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